

In the claims:

In this paper, the applicants submit new claims 43-48 for consideration and cancels claims presently withdrawn from consideration. Please note that the addition/subtraction of claims, and remarks directed to same, and responsive corrections to the paper mailed June 28, 2006, are the only differences between this paper and the contents of the response mailed May 17, 2006. New claims 43-48 depend from claim 42.

1 – 3 (Canceled)

4. (Previously Presented): A multi-domain alignment active-matrix liquid crystal display device comprising;

first and second transparent insulating plates arranged to oppose each other;

said first plate having disposed thereon a plurality of scanning lines and a plurality of signal lines, thin— film transistors provided in the vicinity of intersections between the scanning lines and signal lines, and pixel electrodes connected to the thin—film transistors;

said second plate having a black matrix provided with openings at areas that oppose said pixel electrodes, a color layer and counterelectrodes provided so as to oppose said pixel electrodes;

a liquid crystal being sandwiched between the opposing first and second plates and being control led by voltage impressed across said pixel electrodes and said counterelectrodes;

wherein an orientation layer is provided on each pixel electrode of said first plate via an insulating film,

wherein said orientation layer is formed into a curved surface and orients molecules of the liquid crystal aligned in a direction normal to the curved surface of said orientation

layer;

wherein at least one columnar spacer having a diameter varying along its axis is provided between the two opposing plates for regulating a panel gap therebetween, said at least one columnar spacer disposed approximately at a center of a pixel,

said orientation layer formed on said first plate defines a protrusion directed toward said second plate in a cross section taken along a line normal to said first plate; and

wherein said columnar spacer has a diameter that becomes progressively larger in the direction toward said second plate.

Claims 5 – 14 (Canceled)

15. (Previously Presented): A multi-domain alignment active-matrix liquid crystal display device comprising;

first and second transparent insulating plates arranged to oppose each other;

said first plate having disposed thereon a plurality of scanning lines and a plurality of signal lines, thin— film transistors provided in the vicinity of intersections between the scanning lines and signal lines, and pixel electrodes connected to the thin—film transistors;

said second plate having a black matrix provided with openings at areas that oppose said pixel electrodes, a color layer and counterelectrodes provided so as to oppose said pixel electrodes;

a liquid crystal being sandwiched between the opposing first and second plates and being control led by voltage impressed across said pixel electrodes and said counterelectrodes;

wherein an orientation layer is provided on each pixel electrode of said first plate via an insulating film,

wherein said orientation layer is formed into a curved surface and orients molecules of the liquid crystal aligned in a direction normal to the curved surface of said orientation layer,

wherein at least one columnar spacer having a diameter varying along its axis is provided between the two opposing plates for regulating a panel gap therebetween, said at least one columnar spacer disposed approximately at a center of a pixel; and

wherein liquid crystal molecules contiguous to the surface of the columnar spacer are aligned substantially parallel to the surface of said columnar spacer.

Claims 16 - 20 (Canceled)

21. (Previously Presented): A multi-domain alignment active-matrix liquid crystal display device comprising;

first and second transparent plates arranged to oppose each other;

a liquid crystal being sandwiched between the first and second plates, and

pixel electrodes disposed on one of said plates and counterelectrodes disposed on the other of said plates and adapted to apply voltage to the liquid crystal across the pixel electrodes and the counterelectrodes;

wherein an orientation layer is provided on each pixel electrode of one of said plates via an insulating film,

wherein said orientation layer is formed into a curved or slanted surface so as to orient molecules of the liquid crystal in a direction normal to the curved or slanted surface of

said orientation layer, and

wherein at least one columnar spacer is provided between the two opposing plates for regulating a panel gap between said plates, said at least one columnar spacer disposed approximately at a center of a pixel,

said orientation layer defining a cavity recessed toward one of said plates,

said columnar spacer having a side wall adapted to assist alignment of the liquid crystal molecules oriented by said orientation layer to secure multi—domain alignment thereof, and

said orientation layer defines a protrusion directed toward one of said plates.

22. (Original): The device according to claim 21, wherein said columnar spacer has a side wall adapted to assist alignment of the liquid crystal molecules oriented by said orientation layer to secure multi—domain alignment thereof.

Claims 23 – 33 (Canceled)

34. (Previously Presented): A multi—domain alignment active-matrix liquid crystal display device comprising;

first and second transparent plates arranged to oppose each other;

a liquid crystal being sandwiched between the first and second plates, and

pixel electrodes disposed on one of said plates and counterelectrodes disposed on the other of said plates and adapted to apply voltage to the liquid crystal across the pixel electrodes and the counterelectrodes;

wherein an orientation layer is provided at least on each pixel electrode disposed on

one of said plates, and

wherein at least one columnar spacer having a side surface that is slanted or inclined is provided between the two opposing plates for regulating a panel gap between said plates, said at least one columnar spacer disposed approximately at a center of a pixel.

35. (Previously Presented): The device according to claim 34, wherein said side surface of said at least one columnar spacer is adapted to pre—align molecules of the liquid crystal surrounding each of the columnar spacers centering thereat.

36. (Previously Presented): The device according to claim 35, wherein said at least one columnar spacer has a diameter varying along its axis.

37. (Previously Presented): The device according to claim 35, wherein said at least one columnar spacer has a diameter decreasing or increasing toward one end thereof.

38. (Previously Presented): The device according to claim 35, wherein said side surface is adapted to pre—align molecules of the liquid crystal substantially parallel to the sidewall.

39. (Previously Presented): The device according to claim 35, wherein said orientation layer is formed into a curved or slanted surface so as to orient molecules of the liquid crystal in a defined direction normal to the curved or slanted surface of said orientation layer.

Claims 40 - 41 (Canceled)

42. (Previously Presented): A multi-domain alignment active-matrix liquid crystal display device comprising;

first and second transparent plates arranged to oppose each other;
a liquid crystal being sandwiched between the first and second plates, and
pixel electrodes disposed on one of said plates and counterelectrodes disposed on the other of said plates and adapted to apply voltage to the liquid crystal across the pixel electrodes and the counterelectrodes;

wherein an orientation layer is provided at least on each pixel electrode disposed on one of said plates, and

wherein at least one columnar spacer is provided on said orientation layer between the two opposing plates for regulating a panel gap between said plates, said at least one columnar spacer disposed approximately at a center of a pixel.

43. (New) The device of claim 42 wherein the orientation layer and the pixel electrode are concave-shaped.

44. (New) The device of claim 42 wherein the orientation layer has an orientation direction controlled by oblique deposition of SiO to effect oblique orientation of the orientation layer.

45. (New) The device of claim 42 wherein the columnar spacer is normal to the device and has a diameter increasing toward the counterelectrode opposing the pixel electrode.

46. (New) The device of claim 42 wherein the orientation layer and the pixel electrode are concave-shaped; the orientation layer has an orientation direction controlled by oblique deposition of SiO to effect oblique orientation of the orientation layer; and the columnar

spacer is normal to the device and has a diameter increasing toward the counterelectrode opposing the pixel electrode.

47. (New) The device of claim 42 wherein the orientation layer and the pixel electrode are convex-shaped.

48. (New) The device of claim 42 wherein the columnar spacer is normal to the device and has a diameter decreasing toward the counterelectrode opposing the pixel electrode.

49. (New) The device of claim 42 wherein the orientation layer and the pixel electrode are convex-shaped; the orientation layer has an orientation direction controlled by oblique deposition of SiO to effect oblique orientation of the orientation layer; and the columnar spacer is normal to the device and has a diameter decreasing toward the counterelectrode opposing the pixel electrode.